DM-TX-300N

CRESTRON DigitalMedia™

DigitalMedia™ CAT Transmitter 300N

- *DigitalMedia™ CAT transmitter and multimedia interface*
- *Built-in 3x1 AV switcher with front panel input selection and audio-breakaway[3]*
- *QuickSwitch HD® technology achieves fast, reliable switching*
- *DM® CAT output supports up to 450 ft (137 m) cable length[1]*
- *Provides HDMI®, DVI, RGB, and multi-format analog video inputs*
- *Also supports DisplayPort Multimode sources[4]*
- *Includes balanced/unbalanced analog and S/PDIF audio inputs*
- *Includes a local HDMI monitor output*
- *Handles HD video with HDCP*
- *Handles Dolby Digital®, DTS®, and uncompressed 7.1 linear PCM audio*
- *Detects and reports detailed video and audio input information*
- *Performs automatic AV signal format management via EDID*
- *Provides a 10/100 Ethernet connection*
- *Enables device control via CEC, IR, RS-232, and Ethernet*
- *Allows quick, easy setup and diagnostics*
- *Single-space 19-inch rack-mountable*
- *Includes external universal power pack*

The DM-TX-300N is a DM® CAT transmitter and switcher that offers a versatile interface for computers and high-definition AV sources as part of a complete Crestron® DigitalMedia™ system. Compact and rack-mountable, the DM-TX-300N connects to the head end or display location using a single Crestron DM cable. It provides HDMI®, DVI, VGA, S/PDIF, and analog video and audio inputs, plus Ethernet, RS-232, and IR control ports for a total connectivity solution.

Installed in a stationary podium or equipment rack, the DM-TX-300N provides an ideal solution for integrating rack-mounted sources, switchers, and AV receivers into the DigitalMedia system. Mounted in a movable lectern or AV cart, or just as a portable device, it affords a simple means for connecting laptops, cameras, and other portable sources at any number of wall plates and floor boxes throughout a conference center or auditorium, requiring just a single DM CAT connection (MP-WP185) at each location.

DigitalMedia™

As the leader in HDMI and control system technologies, Crestron developed DigitalMedia (DM) to deliver the first complete HD AV distribution system to take HDMI to a higher level. DigitalMedia allows virtually any mix of HDMI and other AV sources to be distributed throughout a home, office, school, or virtually any other facility. DigitalMedia CAT distributes uncompressed digital video and audio signals up to 450 feet (137 m) using Crestron DM cable[1].

Multimedia Computer/AV Interface

The DM-TX-300N provides versatile switching among three different video and audio sources. The inputs can be selected manually from the front panel or through a Crestron control system. Inputs include:

- **HDMI —** Supports HD 1080p60 video and WUXGA computer signals with HDCP and multi-channel lossless audio. Also handles DisplayPort Multimode signals using an appropriate adapter or interface cable.
- **DVI-I —** This input handles DVI and analog RGB signals up to WUXGA 1920x1200 pixels, as well as analog video up to 1080p60[2]. A stereo audio input is included to accommodate the analog audio signal from a balanced or unbalanced line-level source.
- **Video —** This multi-format video input accepts analog YPbPr component video signals up to 1080p60, as well as standard definition NTSC/PAL composite and S-Video. A choice of S/PDIF digital audio or stereo unbalanced line-level audio inputs is included[3c].

Note: Audio breakaway capability enables virtually any audio input to be used with any video input.[3]

A single DM CAT output is provided for connection to a DM switcher or receiver.[1] Used with a single DM CAT Receiver/Room Controller and optional Crestron Control System, the DM-TX-300N affords a simple solution for extending a multimedia computer or AV signal to a single display up to 450 feet (137 m) away[1]. As part of a larger system using a DM-MD series switcher, multiple DM-TX-300Ns may be installed to enable the distribution of several sources at different locations to feed multiple displays throughout any room or larger facility.

An HDMI output is also included to feed a local monitor. The HDMI output may be set to follow the DM output or to provide a constant pass-through signal from the DVI-I input.

EDID Format Management

The DM-TX-300N allows for management of the EDID (Extended Display Identification Data) information that passes between the display devices and input sources in the system. Using Crestron Toolbox™ software, the format and resolution capabilities of each device can be assessed and managed through the DM-TX-300N, ensuring reliable operation by instructing sources to output only the resolutions and formats that can be handled by the displays and system wiring.

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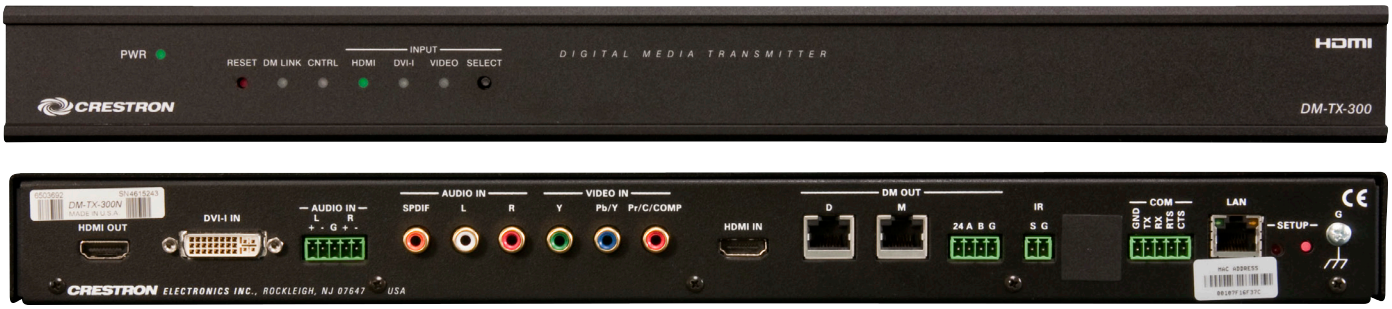

DM-TX-300N – Front and Rear Views

LAN Connectivity

Along with high-definition AV and control, DigitalMedia also integrates high-speed Ethernet networking for a total signal distribution solution. The DM-TX-300N includes a 10/100 Ethernet port, providing a convenient LAN connection for a local network device.

Embedded Device Control

The primary objective of every Crestron system is to enable precisely the control desired for a seamless user experience. The DM-TX-300N includes built-in IR, RS-232, and Ethernet control ports to allow programmable control of the devices connected to it. But, it can also provide an alternative to such conventional control methods by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI. Through its connection to the control system, the DM-TX-300N provides a gateway for controlling the connected source device right through the HDMI connection, potentially eliminating the need for any dedicated control wires or IR emitters.

Compact and Versatile

The DM-TX-300N is designed to be placed on a shelf or mounted in an equipment rack or lectern. It is compact enough to fit inside a presentation lectern or beneath a table. An array of indicators on the front of the DM-TX-300N provides for easy setup and troubleshooting. Advanced configuration is enabled through Crestron Toolbox software.

A Digital Upgrade for Legacy Systems

The DM-TX-300N also affords a perfect signal converter for integrating DigitalMedia with analog-based systems like Crestron MPS, QuickMedia®, and the CEN-RGBHV Series. A simple HD15 VGA cable connected between the output of an MPS system and the DVI-I input of the DM-TX-300N allows every RGB, component, S-Video, and composite video input on the MPS to be converted to DigitalMedia[2]. Analog audio is converted similarly through a balanced stereo audio cable.

Please refer to the DigitalMedia Resources Webpage at http://www.crestron.com/dmresources/ *for additional design tools and reference documents.*

SPECIFICATIONS

Video

Switcher: 3x1 combination digital/analog switch, Crestron QuickSwitch HD®

Input Signal Types: HDMI®, DisplayPort Multimode[4], DVI, RGB, component (YPbPr)[2], S-Video (Y/C)[2], composite[2]

Output Signal Types: DM® CAT (DigitalMedia™ over twisted-pair copper wire), HDMI, DVI[4]

Formats: HDMI, DVI, HDCP content protection support, computer up to UXGA/WUXGA, HD up to 1080p60, NTSC or PAL

Input Resolutions, HDMI & DVI, Progressive: 640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 852x480@60Hz, 854x480@60Hz, 1024x768@60Hz, 1024x852@60Hz, 1024x1024@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1365x1024@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@24Hz (1080p24), 1920x1080@25Hz (1080p25), 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz, 2048x1080@24Hz, 2048x1152@60Hz, plus any other resolution allowed by HDMI up to 165MHz pixel clock

Input Resolutions, HDMI & DVI, Interlaced: 720x480@30Hz (480i), 720x576@25Hz (576i), 1920x1080@25Hz (1080i25), 1920x1080@30Hz (1080i30), plus any other resolution allowed by HDMI up to 165MHz pixel clock

Input Resolutions, RGB: 640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 1024x768@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz, 2048x1152@60Hz

Input Resolutions, Component: 480i, 576i, 480p, 576p, 720p50, 720p60, 1080p24, 1080i25 (1125 lines), 1080i30, 1080p30, 1080p50 (1125 lines), 1080p60

Input Resolutions, Composite and S-Video: 480i, 576i

Output Resolutions: Matched to inputs

Analog-To-Digital Conversion: 10-bit 165 MHz per each of 3 channels

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Audio

Switcher: 3x1 combination digital/analog switch, limited audio breakaway[3]
Input Signal Types: HDMI, DisplayPort Multimode[4], S/PDIF coaxial, analog stereo
Output Signal Types: DM CAT, HDMI
Formats, HDMI & SPDIF: Dolby Digital®, Dolby Digital EX, DTS®, DTS-ES, DTS 96/24, 2ch PCM
Formats, HDMI only: Up to 8ch PCM
Formats, Analog: Stereo 2-channel
Analog-To-Digital Conversion: 24-bit 48 kHz
Performance (analog): Frequency Response: 20Hz to 20kHz ±0.75dB
S/N Ratio: >90dB, 20Hz to 20kHz A-weighted
THD+N: <0.05% @ 1kHz
Stereo Separation: >90dB

Communications

DigitalMedia: DM CAT, DMNet®, HDCP management, EDID format management, CEC
Ethernet: 10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP

Connectors

HDMI OUT: (1) 19-pin Type A HDMI female;
HDMI digital video/audio output, also supports DVI[4];
Carries same audio and video signals as DM OUT, or same signal as DVI-I input

DVI-I IN: DVI-I female (or DB15HD female via adapter included);
DVI, RGB (VGA), component, S-Video, or composite video input[2];
Analog Formats: RGBHV, RGBS, RGsB, YPbPr, Y/C, NTSC, PAL;
Analog Input Levels: 0.5 to 1.5 Vp-p with built-in DC restoration;
Analog Input Impedance: 75 Ohms;
Analog Sync Input Type: Autodetect RGBHV, RGBS, RGsB, YPbPr;
Analog Sync Input Level: 3 to 5 Vp-p;
Analog Sync Input Impedance: 1k Ohms

AUDIO IN (BALANCED): (1) 5-pin 3.5mm detachable terminal block;
Balanced/unbalanced stereo line-level input;
Balanced Input Level: 4 Vrms maximum;
Unbalanced Input Level: 2 Vrms maximum;
Input Impedance: 24k Ohms balanced/unbalanced

AUDIO IN, SPDIF: (1) RCA female;
S/PDIF coaxial digital audio input;
SPDIF and UNBALANCED AUDIO IN inputs are mutually exclusive;
Input Impedance: 75 Ohms

AUDIO IN (UNBALANCED): (2) RCA female;
Unbalanced stereo line-level audio input;
UNBALANCED and SPDIF AUDIO IN inputs are mutually exclusive;
Input Level: 2 Vrms maximum;
Input Impedance: 15k Ohms

VIDEO IN: (3) RCA female;
Comprises (1) auto-sensing multi-format analog video input;
Signal Types: Component (YPbPr), S-Video (Y/C), or composite;
Input Level: 1 Vp-p nominal;
Input Impedance: 75 Ohms nominal

HDMI IN: (1) 19-pin Type A HDMI female;
HDMI digital video/audio input;
Also supports DisplayPort Multimode[4]

DM OUT, D & M: (1) DM CAT output composed of (2) 8-pin RJ45 female, shielded; Connects to DM CAT input of a DM switcher, receiver/room controller, or other DM device via DM-CBL cable[1]

DM OUT, 24ABG: (1) 4-pin 3.5mm detachable terminal block, DMNet port;
Connects to DMNet port of a DM switcher, receiver/room controller, or other DM device via DM-CBL cable[1];
Note: "24" terminal must be connected only to dedicated power pack, model PW-2420DUL (included)

IR: (1) 2-pin 3.5mm detachable terminal block, IR/Serial port;
IR output up to 1.1 MHz;
1-way serial TTL/RS-232 (0-5 Volts) up to 19200 baud

COM: (1) 5-pin 3.5mm detachable terminal block;
Bidirectional RS-232 port;
Up to 115.2k baud, hardware and software handshaking support

LAN: (1) 8-wire RJ45 female;
10Base-T/100Base-TX Ethernet port

G: (1) 6-32 screw, chassis ground lug

DM Cable Length

Maximum length without, between, before, or after repeaters:

200 ft (60 m) for 720p, 1080i, 1080p24
200 ft (60 m) for 1024x768 @75Hz
150 ft (45 m) for 1080p60
150 ft (45 m) for 1280x1024 @75Hz
150 ft (45 m) for 1920x1200 @60Hz
125 ft (38 m) for 1600x1200 @60Hz

Maximum total length using up to 2 repeaters:

450 ft (137 m) for 720p, 1080i, 1080p24
450 ft (137 m) for 1024x768 @75Hz
450 ft (137 m) for 1080p60
450 ft (137 m) for 1280x1024 @75Hz
450 ft (137 m) for 1920x1200 @60Hz
375 ft (114 m) for 1600x1200 @60Hz

Controls & Indicators

PWR: (1) green LED, indicates operating power supplied via power pack
RESET: (1) recessed miniature pushbutton for hardware reset
DM LINK: (1) green LED, indicates DM link status
CNTRL: (1) red/green dual-color LED, indicates Ethernet connection and control system communication status

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INPUT, HDMI: (1) green LED, indicates HDMI input is selected
INPUT, DVI-I: (1) green LED, indicates DVI-I input is selected
INPUT, VIDEO: (1) green LED, indicates VIDEO input is selected
INPUT, SELECT: (1) pushbutton, toggles through inputs
LAN (rear): (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity
SETUP (rear): (1) red LED and (1) recessed miniature pushbutton for Ethernet setup

Power Requirements

Power Pack: 2.5 Amps @ 24 Volts DC;
100-240 Volts AC, 50/60 Hz power pack, model PW-2420DUL included

Environmental

Temperature: 32° to 104°F (0° to 40°C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 95 BTU/hr

Enclosure

Chassis: Metal, black finish, vented top and sides
Faceplate: Metal, black finish with polycarbonate label overlay
Mounting: Freestanding or 1U 19-inch rack-mountable (adhesive feet and rack ears included)

Dimensions

Height: 1.70 in (44 mm);
1.91 in (49 mm) with feet
Width: 17.03 in (433 mm);
19.00 in (483 mm) with rack ears
Depth: 8.71 in (222 mm)

Weight

3.5 lb (1.6 kg)

MODELS & ACCESSORIES

Available Models

DM-TX-300N: DigitalMedia™ CAT Transmitter 300N

Included Accessories

PW-2420DUL: Desk Top Power Pack 24VDC, 2.5A, Universal (Qty. 1 included)

Available Accessories

DM-CBL-NP: DigitalMedia™ Cable, non-plenum
DM-CBL-P: DigitalMedia™ Cable, plenum-rated
DM-CONN-20: DigitalMedia™ Cable Connectors, 20-Pack
DM-DR: DigitalMedia™ CAT Repeater
IRP2: IR Emitter Probe
CNSP-XX: Custom Serial Interface Cable
CBL Series: Crestron® Certified Interface Cables
MP-WP Series: Media Presentation Wall Plates
MPI-WP Series: Media Presentation Wall Plates - International Version

Notes:

1. For DigitalMedia CAT wiring, use DM-CBL DigitalMedia Cable. Up to two DM CAT Repeaters (Model DM-DR) may be required. Refer to the Crestron DigitalMedia Design Guide, Doc. #4546 for complete system design guidelines. All wire and cables sold separately.
2. RGB to DVI-A adapter included. In addition to DVI and RGB, the DVI-I input can actually accept component, composite, and S-Video signals via direct interface to Crestron MPS Series products, or through an appropriate adapter (not included). However, input sync detection is not provided for composite or S-Video signal types through the DVI-I connection.
3. Audio breakaway capabilities and limitations: a) SPDIF/UNBALANCED AUDIO IN and BALANCED AUDIO IN may each be switched freely regardless which video input is selected. b) HDMI IN audio may be switched freely except when the VIDEO IN input is selected. c) SPDIF and UNBALANCED AUDIO IN inputs are mutually exclusive. d) Front panel INPUT SELECT control switches BALANCED AUDIO IN with DVI-I IN video, SPDIF/UNBALANCED AUDIO IN with VIDEO IN, and HDMI IN audio with HDMI IN video.
4. HDMI IN requires an appropriate adapter or interface cable to accommodate a DisplayPort Multimode signal. HDMI OUT requires an appropriate adapter or interface cable to accommodate a DVI signal. CBL-HD-DVI interface cables available separately.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

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The specific patents that cover Crestron products are listed online at: patents.crestron.com.

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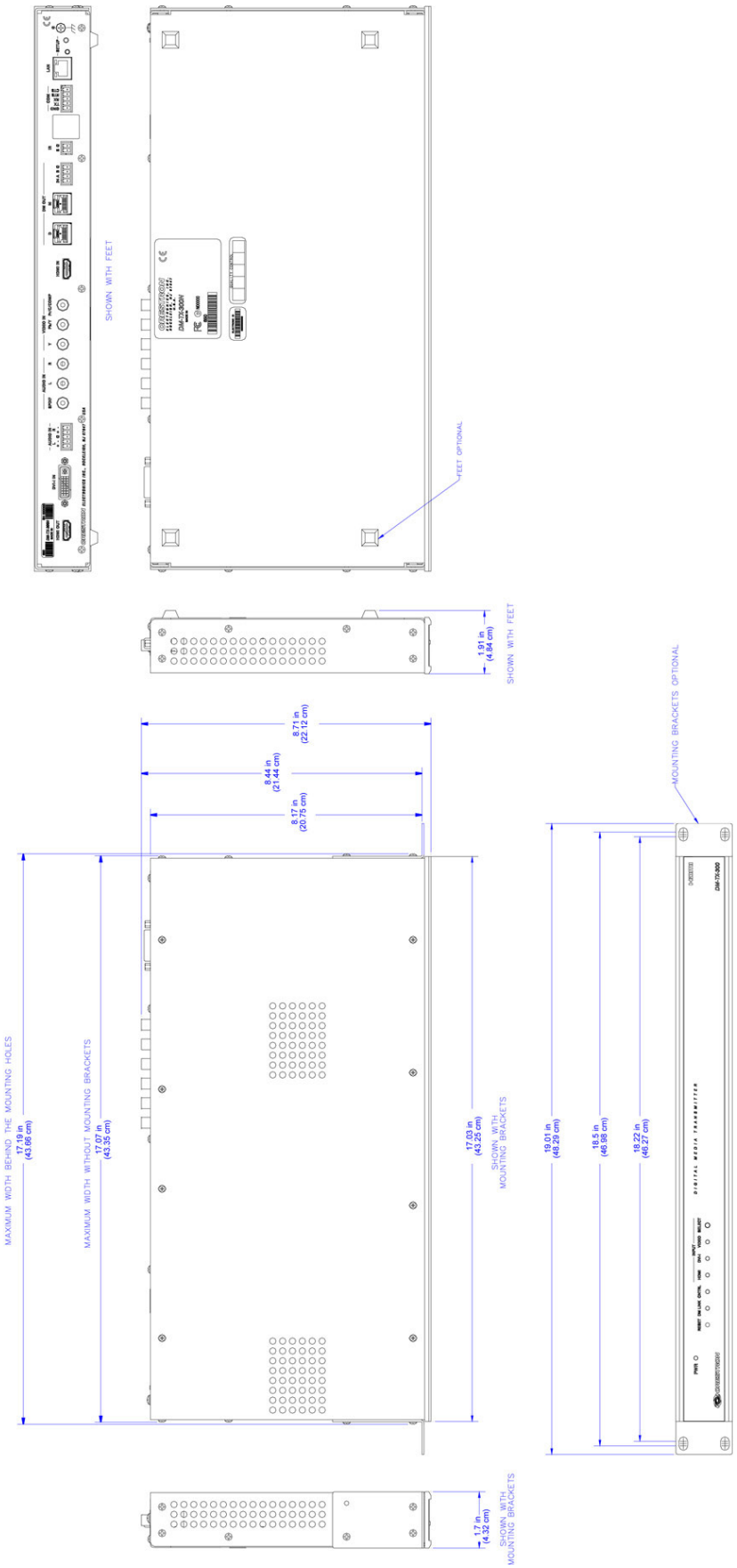

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